FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Connect America Fund	)	WC Docket No. 10-90
	)	
Developing an Unified Intercarrier Compensation Regime	)	WC Docket No. 01-92
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	)	

REPLY COMMENTS OF HD TANDEM

November 20, 2017

Before the
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HD Tandem believes that the time is ripe for the Federal Communications Commission ("Commission" or "FCC") to jumpstart the Internet Protocol ("IP") Transition with a new IP framework. HD Tandem agrees with the widespread recognition that the legacy Time Division Multiplexing ("TDM") based regulations are obsolete and the existing geographically-based public switched telephone network ("PSTN") serves as an obstacle to the IP Transition. HD Tandem therefore has proposed a new regulatory IP framework to unlock the IP Transition, thereby accomplishing the FCC's goals, addressing carriers' outstanding concerns and giving consumers and industry alike the key to reaping the full accompanying benefits of an all-IP world.

I. The Record in this Proceeding Demonstrates Agreement that Now is the Appropriate Time for the FCC to Address Issues that have Stifled the IP Transition and Caused Lingering Industry Heartburn

Most commenters agree that the industry is stuck in regulatory limbo.[1] Despite the reforms adopted by the FCC in the *2011 USF/ICC Transformation Order and FNPRM* ("Order" or "Transformation Order")[2] and because the overall current regulatory environment is still TDM-centric, carriers have little incentive to transition to IP networks, effectively holding the IP Transition hostage.[3] In fact, despite many companies' rhetoric that they are all aboard the IP train, many incumbent carriers still rely on TDM equipment and "inefficient TDM-based arrangements."[4] This reliance on TDM technologies means that many companies are forced to invest money to convert TDM-based voice traffic to IP, as opposed to investing those same dollars in IP-based equipment of the future, therefore perpetuating the legacy TDM networks and stifling the IP Transition.[5] These stranded investments - both the initial upfront costs and the

[1] *See, e.g.,* Comments of CenturyLink, WC Docket No. 10-90; CC Docket No. 01-92, at 2 ("In addressing these issues, the Commission has an historic opportunity to both resolve still-open critical questions from the 2011 ICC Transformation FNPRM that are complicating the industry's implementation of the Transformation Order transition, and to take significant strides toward placing the treatment of intermediate network services on a solid footing for the IP migration").

[2] *Connect America Fund; A National Broadband Plan for Our Future; Establishing Just and Reasonable Rates for Local Exchange Carriers; High-Cost Universal Service Support; Developing an Unified Intercarrier Compensation Regime; Federal-State Joint Board on Universal Service; Lifeline and Link-Up; Universal Service Reform – Mobility Fund*, WC Docket Nos. 10-90, 07-135, 05-337, 03-109; GN Docket No. 09-51; CC Docket Nos. 01-92 and 96-45; WT Docket No. 10-208, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 17663 (2011) ("*Transformation Order*").

[3] *See, e.g.,* Comments of NCTA, WC Docket No. 10-90; CC Docket No. 01-92, at 1 ("Now is the time for the Commission to consider additional reforms that will eliminate lingering inefficiencies and distortions in the marketplace and provide strong incentives for carriers to complete the transition to an all-Internet Protocol (IP) network"); *see also* Comments of Voice on the Net Coalition, WC Docket No. 10-90; CC Docket No. 01-92, at 3 ("The Commission should eliminate in all due haste any incentive carriers may have to maintain costly TDM networks and their inefficient per minute charges").

[4] Comments of NCTA at 2.

[5] *See Id.* ("Six years later, while incumbent LECs state they are very interested in transitioning to IP, many of them still require cable operators to exchange a substantial portion of voice traffic through highly inefficient TDM-based arrangements. As a result, NCTA members still spend millions of dollars every year converting IP-based voice traffic to TDM solely so that it can be exchanged with incumbent LECs").

recurring expenses associated with TDM to IP conversion - could be put to much better use, specifically actually transitioning to IP or investing in IP networks.[6]

Any solutions designed around the TDM world will only serve to relegate today's communications networks to the obsolete TDM model and act as an impediment to an IP world, thereby depriving consumers of the benefits of IP technologies.[7] HD Tandem agrees that relying on the legacy PSTN network framework will only further delay the IP Transition and deprive consumers and the industry of accompanying benefits.[8] Rather, "a rational interconnection framework used for the exchange of packetized voice traffic should mimic the framework used for the exchange of all other types of Internet traffic."[9] The FCC has the opportunity at this time to adopt a framework that mirrors the Internet networks of today, jumpstarts the IP Transition, and provides both near term price relief and a long term path to a modern IP network.

II. HD Tandem's Solution Provides an Immediate Solution to Industry Issues and a Long Term Key to Unlocking the IP Transition

Rather than propose a solution that is handcuffed by the obsolete TDM networks of yesterday, HD Tandem's solution offers an immediate remedy to unlock the IP Transition - a clear goal of the FCC and industry.[10] Since the FCC first started down the intercarrier

[6] For example, HD Tandem, a state of the art IP company, has itself been forced to invest in legacy technologies, such as TDM circuits, Class 5 switching, and equipment necessary for TDM to VoIP conversion, and bear all of the costs to do so, solely for the purpose of transitioning carriers from the PSTN network to an IP network.

[7] *See, e.g.*, Voice on the Net Coalition Comments at 3 ("The Commission should eliminate in all due haste any incentive carriers may have to maintain costly TDM networks and their inefficient per minute charges").

[8] *See, e.g.*, Comments of Sprint, WC Docket No. 10-90; CC Docket No. 01-92, at 4 ("[i]t makes no sense to continue to use the legacy PSTN network framework as the basis for interconnection rules for IP voice traffic").

[9] *See Id.*

[10] *See* NCTA Comments at 2 ("From NCTA's perspective, the overarching objective of the next phase of the Commission's intercarrier compensation reforms should be providing incentives for completing the transition to an all-IP environment"). NCTA further explains that ("[t]he Commission should continue to take steps that encourage carriers to complete the transition to all-IP networks. When that goal is reached, the Commission will be able to rely

compensation reform road with the adoption of the Transformation Order,[11] the IP Transition seems to have been stifled.[12] The FCC can, and should, act now to jumpstart the IP Transition because "[a]bsent comprehensive reform designed to expedite the IP Transition, the harm to the public caused by arbitrage schemes, intercarrier disputes, network vulnerabilities, and obstacles preventing – or discouraging – carriers from voluntarily engaging in the IP Transition will remain, even if the FCC now adopts all the steps towards ICC reform it contemplated in 2011."[13]

Multiple commenters in this proceeding highlighted mileage-based concerns calling for "new rules to be put in place" to address concerns.[14] Consistent with the stated objectives of the FCC,[15] HD Tandem's solution (a solution that is working *today* for substantial volumes of traffic)

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more extensively on market forces and less on the type of prescriptive rules that traditionally have governed the exchange of TDM-based voice traffic"). *Id* at 7; *see also* CenturyLink Comments at 2 ("In addressing these issues, the Commission has an historic opportunity to both resolve still-open critical questions from the 2011 ICC Transformation FNPRM that are complicating the industry's implementation of the Transformation Order transition, and to take significant strides toward placing the treatment of intermediate network services on a solid footing for the IP migration").

[11] *Connect America Fund; A National Broadband Plan for Our Future; Establishing Just and Reasonable Rates for Local Exchange Carriers; High-Cost Universal Service Support; Developing an Unified Intercarrier Compensation Regime; Federal-State Joint Board on Universal Service; Lifeline and Link-Up; Universal Service Reform – Mobility Fund*, WC Docket Nos. 10-90, 07-135, 05-337, 03-109; GN Docket No. 09-51; CC Docket Nos. 01-92 and 96-45; WT Docket No. 10-208, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 17663 (2011) ("*Transformation Order*").

[12] *See, e.g.*, NCTA Comments at 2, (stating "[f]rom NCTA's perspective, the overarching objective of the next phase of the Commission's intercarrier compensation reforms should be providing incentives for completing the transition to an all-IP environment").

[13] Comments of T-Mobile, WC Docket No. 10-90; CC Docket No. 01-92, at 2; *see also* Comments of Verizon, WC Docket No. 10-90; CC Docket No. 01-92, at 1 (calling for the FCC to adopt measures to address immediately the most prevalent forms of transport arbitrage); *see also* Comments of AT&T, WC Docket No. 10-90; CC Docket No. 01-92, at 6 (stating that "the Commission will still need to fashion the right mix of regulatory relief for the remaining intermediate services and residual rules that guard against any lingering opportunities for arbitrage").

[14] *See, e.g.*, Comments of AT&T at 15; *see also* Verizon comments at 9 ("To curtail incentives for mileage pumping until transport rates have transitioned to bill-and-keep and limit mileage-related disputes during the transition, the Commission should adopt clear interim rules to limit the tandem-switched transport mileage that LECs may bill)."

[15] *See* Transformation Order at ¶ 655 ("In addition, our reforms will promote the nation's transition to IP networks, creating long-term benefits for consumers, businesses, and the nation. The convergence of data, voice, video and text in networks based upon IP supports the Internet as an open platform for innovation, investment, job creation, economic growth, competition and free expression."); *see also* Transformation Order at ¶ 793 ("By moving in a coordinated manner to address the intercarrier compensation system for all traffic, we will also help to ensure that there is no disruption in the transition to more efficient forms of all IP networks. The record suggests that a 'federally managed, geographically neutral' intercarrier compensation regime that eliminates incentives for arbitrage

is geographically neutral,[16] economically efficient, and pro-consumer with tangible technological benefits. Specifically, HD Tandem proposes a new regulatory framework that envisions initially creating an alternative route for high-volume applications traffic, which appears to be the most troubling to many of the commenters, and allowing originating carriers the ability to choose over which route to send their traffic - whether down the legacy PSTN or via a state of the art IP network:

a. If a local provider is hosting high-volume voice applications, then the provider should be required to offer an Internet Protocol Homing Tandem ("IPHT").

b. The trigger for establishing and IPHT should be the same as those triggers the FCC first set forth in the *Transformation Order* to identify access stimulation and thereby trigger a reduce access rate.[17]

This proposal provides a clear and immediate alternative path for traffic associated with high-volume voice applications. Other traffic types could have a planned migration schedule such that an all-IP traffic exchange exists within 2-3 years.[18]

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will allow service providers to deploy resources in more productive ways. In addition, a unified approach for all ICC traffic will help remove obstacles to progress toward all-IP networks where jurisdictional boundaries become less relevant").

[16] *See* Comments of HD Tandem, WC Docket No. 10-90; CC Docket No. 01-92, at 7 ("The IPHT would charge a non-mileage-sensitive rate (as HD Tandem does today)"). HD Tandem's pricing approach (proposed and in use today) also addresses the concerns raised in a Letter, *Developing a Unified Intercarrier Compensation Regime*, CC Docket No. 01-92; *Petition of AT&T Services, Inc. for Forbearance Under 47 U.S.C. § 160(c) from Enforcement of Certain Rules for Switched Access Services and Toll Free Database Dip Charges*, WC Docket No. 16-363, NTCA–The Rural Broadband Administration; AT&T; NCTA – The Internet & Television Association; Windstream Services, LLC; Verizon; Frontier Communications; USTelecom Association; and WTA – Advocates for Rural Broadband, submitted November 16, 2017 at 1 ("Those practices result in substantial charges for transport of the stimulated traffic to reach those locations").

[17] *See* Transformation Order at ¶ 679 ("If a competitive LEC meets the definition, it must benchmark its tariffed access rates to the rates of the price cap LEC with the lowest interstate switched access rates in the state, rather than to the rates of the BOC or the largest incumbent LEC in the state (as proposed in the USF/ICC *Transformation NPRM*)".

[18] The intent of HD Tandem's proposal is <u>not</u> to perpetuate artificial and harmful traffic distinctions. HD Tandem advocates treating all operating company numbers ("OCNs"), points of origination, and technologies equally. Once the success of the IPHT is further demonstrated, other traffic types – e.g., wireless and VoIP – should quickly follow.

HD Tandem's proposal would address industry concerns and accelerate the IP Transition by immediately addressing a significant percentage of the total terminating traffic – the traffic terminating to high volume voice applications.[19] AT&T, for example, complains that "*one* transport provider at issue is responsible for over *12 percent* of AT&T's *total, nationwide* billed terminating switched access expense."[20] There is no quicker solution for transitioning large volumes of traffic from TDM to IP than HD Tandem's proposal.

Furthermore, HD Tandem's proposal poses little risk of unintended industry collateral damage, a potential consequence the FCC would seemingly like to avoid,[21] with this initial traffic move toward the IPHT.[22] Unlike other proposals put forth in the initial comments that advocate preserving legacy TDM-based intercarrier compensation arrangements for some types of traffic and implementing new, flash cut changes for other types of traffic, including high volume access stimulation traffic,[23] HD Tandem's proposal embraces the concerns identified by the parties and addresses the issues head-on to facilitate the broader IP Transition and better serve the demands created by this traffic. Specifically, HD Tandem's solution would remove the controversial high volume access stimulation traffic from legacy networks that are ill-equipped

[19] *See, e.g.*, AT&T Comments at 13 (discussing both excessive rates and high traffic volumes).

[20] *Id.*

[21] *See Parties Asked to Refresh the Record on Intercarrier Compensation Reform Related to the Network Edge, Tandem Switching and Transport, and Transit*, Public Notice, WC Docket No. 10-90; CC Docket No. 01-92; DA 17-863 (rel. Sept. 8, 2017) (the "Notice") (The FCC questions whether "changes to intercarrier compensation (ICC) for tandem switching and transport [would] lead to inadequate revenues for any type of service provider," and, if so, how the Commission should address such shortfalls").

[22] *See, in contrast,* Verizon Comments at 8 (proposing a flash cut pricing solution for access stimulation traffic: "There is no reason for the Commission to give access stimulators an additional transition period").

[23] *See, e.g.*, Verizon Comments at 8 (stating "[t]he Commission should act ***immediately*** to reduce transport rates to bill and keep for carriers engaged in access stimulation") (emphasis added).

to handle it anyway and transition such traffic to an alternate call path "in accordance with the Commission's long-standing 'no flash cut' policy."[24]

III. HD Tandem's Proposal Addresses Other Outstanding Issues Raised in the Record

HD Tandem's IPHT solution lays the foundation for addressing other issues that are a result of the obsolete TDM regulations and hurdles to the IP Transition. First, with regards to pricing, HD Tandem welcomes the opportunity this Notice provides to discuss pricing alternatives, specifically as they relate to the pricing of any IPHT. Such pricing should be, as previously stated, geographically neutral, but also take into account the higher level of service offered by a tandem like an IPHT.[25] All of HD Tandem's pricing to date has been successfully handled on a negotiated, customer-by-customer basis.

HD Tandem also agrees with the many commenters that recognize there will be an important, ongoing role for intermediate providers even with bill-and-keep and a more fully realized transition to IP.[26] What parties are concerned about, however, is making sure this intermediate provider role is not exploited, and have proposed network edge strategies to address the problem.[27] HD Tandem's proposal addresses the issue directly without the need for selective

[24] NTCA Comments at 3-4 ("Actions to reduce or eliminate additional ICC rates should be done in accordance with the Commission's long-standing 'no flash cuts' policy, and only after a robust and fully compensatory recovery mechanism is created to avoid rural consumer rate shock and sustain universal service").

[25] *See* HD Tandem Comments at 7 (describing the proposed IPHT solution which "would help the FCC address other broader public policy concerns, such as rural call completion problems, by providing a complete genealogy of the call path, and ongoing fraud issues, by supporting technologies that have aided in stopping certain types of fraud including SIM card fraud").

[26] *See, e.g.,* Comments of CenturyLink, WC Docket No. 10-90; CC Docket No. 01-92, at 6 ("… intermediate network services will continue to be essential – even in the all-IP world"); *see also* AT&T Comments at 2 ("The end-state bill-and-keep system with a network edge will not end all intercarrier payments, however, because sometimes the sending carrier will need to engage (and pay) a third carrier to deliver calls to the designated edge"); *see also* Comments of Carrier Coalition, WC Docket No. 10-90; CC Docket No. 01-92, at 32 ("As networks transition to all-IP infrastructure, competition in the transit market will only increase").

[27] AT&T Comments at 23-24 ("To prevent LECs from abusing the network edge rules and charging unreasonable rates, the Commission should modify its rules on access stimulation to address this type of market failure within the context of a bill-and-keep regime. For example, the Commission could revise its access stimulation rules to provide

network edge manipulation. Specifically, HD Tandem's proposal would have all intermediate IP homing tandems stand on equal footing and be treated equally from a regulatory perspective.[28]

Similarly, HD Tandem's IPHT proposal diminishes the need for aggressive action regarding direct connects. The availability of direct connects is not the panacea some carriers suggest it is. The proposed IPHT will make high volume applications traffic exchange more efficient and reduce the artificially high demand for direct connects – demand that is has historically been driven by high switched transport rates. To the extent direct connect options become mandatory, the requirements should be symmetrical for wireline and wireless carriers.[29]

Finally, HD Tandem's solution accomplishes the FCC's goals of jumpstarting the IP Transition literally from the outside in - i.e. the network edge in. HD Tandem does not have any detailed comments on redefining network edges. But, because HD Tandem's proposal makes geography and mileage irrelevant for traffic exchanged via the IPHT, the importance of the *locations* of the network edges diminishes.

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that, whenever a carrier's traffic is imbalanced such that it carries at least three or more times more terminating access traffic than originating access traffic (or vice versa), the default network edge would automatically revert to a tandem within the same LATA as the carrier's end office, to be selected by the sending carrier").

[28] *See* CenturyLink Comments at 3 ("The Commission should correct this asymmetry by adopting rules permitting all tandem owners to be compensated equally for the use of their networks – thereby establishing the end office as the proper default network edge for all providers. Moreover, it should find that bill and keep should not be mandated for any tandem switching and transport services whether those services are provided in connection with traffic bound for the tandem providers' own (or affiliated) end users or to a third party (i.e. wholly unaffiliated) end users").

[29] *See, e.g.*, Comments of Peerless Network, Inc; West Telecom Services, LLC; Peninsula Fiber Network, LLC; Alpha Connect, LLC; Rural Telephone Service Company, Inc. d/b/a/ Nex-Tech; Nex-Tech, LLC; and Tennessee Independent Telecommunications Group, LLC d/b/a/ Iris Networks, WC Docket No. 10-90; CC Docket No. 01-92, at 4 ("the Commission should immediately adopt a rule requiring that all wireline and wireless carriers make direct connections available at the network edge to requesting carriers that send or receive at least four (4) T-1s of originating and/or terminating traffic per month (or for IP networks or other modern technology, 200,000 monthly Minutes of Use ("MOUs") sustainable average over a 30-day period").

IV. Conclusion

HD Tandem's IPHT solution provides a tangible and immediate path forward to facilitate the IP Transition. As opposed to just chipping away at the obsolete PSTN-based regulations, this solution creates a framework that moves those clinging to the TDM world to get on the IP train once and for all, delivering the full benefits of IP technologies to consumers and industry alike.

Respectfully submitted,

/s/ David Erickson

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